Office of Energy Efficiency and Renewable Energy

DOE Technology Base for Hybrid-Electric Vehicles Tapped by Industry

Chrysler's ESX2

Ford's P2000

General Motors' EV-1

Background

Innovative concepts and technologies that dramatically increase automotive fuel economy are required in order to significantly reduce our nation's dependence on imported oil. To achieve this goal, the U.S. Department of Energy has undertaken a two-phase vehicle systems technology development program. Phase 1 is working to develop 50-mpg, production-feasible, hybrid-electric propulsion system technologies for light-duty vehicles by 1999. Phase 2 is aimed at developing advanced technologies that can achieve 80 mpg by 2004. This supports the President's Partnership for a New Generation of Vehicles initiative. All advanced technologies will comply with emission regulations projected to be in place when the technologies become market ready.

Accomplishments

- The auto industry is beginning to use technologies developed in Phase 1 as it nears completion. These technologies include high-efficiency heat engines, advanced electric-drive systems, improved transmissions, and high-power batteries.
- Three domestic auto companies recently showcased vehicle designs that contain Phase 1 technologies applicable to conventionally configured advanced and hybrid-electric vehicles. The vehicles include the Chrysler ESX2, Ford P2000, and the General Motors EV-1 platform.
- Computer simulations show that some of these vehicles could achieve 60 to 80 mpg fuel economy over the standard drive cycles specified by the U.S. Environmental Protection Agency.

Benefits

- Reduces fuel consumption in a PNGV vehicle by a factor of up to three over conventional vehicles.
- Reduces greenhouse gases in proportion to fuel economy.
- Improves the nation's energy security by reducing the amount of imported oil used daily.

Future Activities

- Develop direct-injection diesel engines for hybrid-electric automobile drivetrains that meet future emission standards.
- Simplify and reduce costs of components and interfaces in order to be competitive with conventional vehicles.
- Demonstrate reliability and durability equivalent to today's vehicles.

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